

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Yasuhide OHASHI

Application No.: 09/028,456

Filed: February 24, 1998

For: SEMICONDUCTOR DEVICE WITH POWER SOURCE CONDUCTOR PATTERN
AND GROUNDING CONDUCTOR PATTERN (As Amended)



Group Art Unit: 2811

Examiner: L. Thai

Docket No.: JAO 40656

#8A
G. Doan
9/2/99

AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

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TECHNOLOGY CENTER 2800

Sir:

In response to the Office Action dated June 3, 1999, please amend the above-identified application as follows:

IN THE TITLE:

Please amend the title to read --SEMICONDUCTOR DEVICE WITH POWER
SOURCE CONDUCTOR PATTERN AND GROUNDING CONDUCTOR PATTERN--.

REMARKS

Claims 1-23 are pending. By this Amendment, the title is amended. No new matter is added.

The Office Action objects to the title as not being descriptive. This objection is moot in view of the amendment to the title. Accordingly, withdrawal of the objection to the title is requested.

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The Office Action rejection to claims 1-7 and 15-23 under 35 U.S.C. §102(b) over Higgins (U.S. Patent No. 5,212,402). This rejection is respectfully traversed.

Higgins does not disclose or suggest conductor patterns extending across an opening having a width wider than the width of one of the pads of the semiconductor chip, as recited in claim 1. Instead, as shown in Fig. 5 of Higgins, signal leads 16, power leads 19, and grounding leads 36 are of the same size as the bond pads 52 on the semiconductor die. Further, as seen in Fig. 15, for example, the leads 68 appear to be smaller than the bond pads 74. The Office Action has asserted that the drawings in Figs. 5 and 14 of Higgins, for example, appear to disclose the claimed width of the conductor patterns being wider than the width of the pads. However, there is no support for any conductor pattern size or pad size in Higgins. The specification of Higgins is clearly deficient in any teaching of the size of the conductor patterns and the size of the pads. See In re Olsen, 212 F.2d 590, which set forth that "drawings alone can not form the basis of a valid claim" and that "distances and dimensions . . . cannot be scaled off . . . to show that any particular distances or sizes are exactly equal when the specification is completely silent in this respect." In Breen v. Cobb, 487 F.2d 558, the decision stated that "drawings herein do not present to the skilled artisan a teaching of any particular relationship . . ." and that "the skilled artisan, if he noted the amount offset in any of the drawings at all, could regard the showing as accidental or arbitrary."

As such, Applicant submits that the drawings in Higgins do not support any enabling disclosure. The drawings are merely a nonscaled visual representation of the interrelated structure of an invention which help to enhance presumption of the invention. Since there is no specific teaching of the component sizes in Higgins, and since there is an important relationship of the sizes used in the present invention in that the conductor patterns have a

width wider than the width of one of the pads of the semiconductor chip, the presently claimed invention would not be anticipated by Higgins. Following broad teachings of Higgins would result in inferior semiconductor devices without undue experimentation.

Higgins also does not disclose or suggest 1) at least one of the conductive patterns having at least one connection branch, the connection branch having a width narrower than a width of one of the pads of the semiconductor chip, as recited in claim 4, 2) at least one of the conductor patterns having at least one branch, the branch having a tip portion connected to a flexible insulation substrate as recited in claim 15, or 3) each of the conductor patterns having at least one branch connection inner lead, the branched connection inner lead having a width narrower than the width of one of the pads of the semiconductor chip, as recited in claim 20. As shown in Figs. 2 and 3 of Higgins, signal leads 16, power leads 19 and ground leads 36 do not comprise of any branches. In fact, as shown in Figs. 8, 10 and 15 of Higgins, for example, the leads are connected to the semiconductor die via bumps 50 and 75 on the pads 52 and 74, respectively.

Accordingly, claims 4, 15 and 20 are not anticipated by Higgins. Further, because claims 2-3 depend from claim 1, claims 5-7 depend from claim 4, claims 16-19 depend from claim 15 and claims 21-23 depend from claim 20, claims 2-3, 5-7, 16-19 and 21-23 also are not anticipated by Higgins.

The Office Action rejects claims 8-14 under 35 U.S.C. §103(a) over Higgins. This rejection is respectfully traversed.

As admitted by the Office Action, Higgins does not disclose or suggest at least one of the power source electrode and the grounding electrode of the semiconductor chip being larger than the signal electrode, as recited in claim 8. In fact, Higgins is silent as to any sizes

of the signal leads 16, power leads 19 and ground leads 36, and discloses no motivation to vary the sizes of these leads.

Contrary to Higgins, claim 8 recites the preference that at least one of the power source electrode and a ground electrode of the semiconductor chip being larger than a signal electrode thereof. As disclosed on page 7, lines 1-10, for example, in the invention thus structured, at least the advantages of the power source impedance lowered, the electrical noise improved, and the number of power source electrodes and grounding electrode of the semiconductor chip reduced are obtained, with the result that further miniaturization and simplification of semiconductor devices can be achieved. Higgins instead is unconcerned with such advantages. Accordingly, it would not have been obvious to vary the sizes of the leads of Higgins.

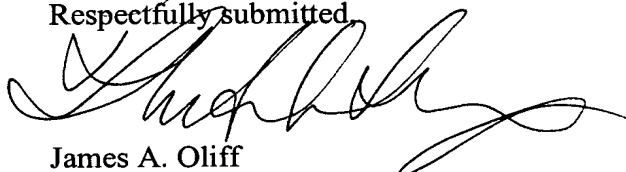
Thus, claim 8 would not have been obvious over Higgins. Further, because claims 9-14 depend from claim 8, claims 9-14 also would not have been obvious over Higgins.

For at least the above reasons, the Applicant submits that claims 1-7 and 15-23 are not anticipated by Higgins, and claims 8-14 would not have been obvious over Higgins. Accordingly, Applicant requests withdrawal of the rejection of claims 1-7 and 15-23 under 35 U.S.C. §102(b) and the rejection of claims 8-14 under 35 U.S.C. §103(a).

For at least the above reasons, Applicant submits that the application is condition for allowance. Prompt consideration and due allowance are earnestly solicited.

If the Examiner believes anything further is desirable in order to place the application in even better condition for allowance, the Examiner is requested to contact Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,



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